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WEITERE INFORMATIONEN OK

Saturday, March 22, 2008

Representation distance

An agent (or representative) is a person authorized by his principal (or constituent) to act on behalf of that principal. The task of the agent, ideally, is to implement the will, interests, or preferences of that principal. The degree of communication and control of the principal over the agent varies greatly. Examples of principal/agent relationships include employer/employee, shareholder/management, and voter/representative. Agency law and principles can be applied, metaphorically or actually, to all such relationships. Economists study the “agency problems” that occur when the agent’s behavior is influenced by other interests, especially his own. A contract in which, when rules are not specified, one person is legally or morally expected to learn and implement the preferences of the other, or at least to maximize an abstract measure representing the preferences of another, is an agency contract.

Agency contrasts sharply with a grant of property rights. The grantee, the person to whom property is granted, is bound by the rules of the grant, not by the will of the grantor. A grantor can cause his interests to be represented only through specifying, before the grant is made, the conditional rules under which the grant is made. Within the grant condition and boundary rules, the owner of property is legally expected to act solely in his own interests. With political property rights, the “boundaries” are rules of legal procedure which the owner may not breach. A similar but temporary effect can sometimes be achieved with a contract that details all of the rules of the relationship, with the legal and moral understanding that all else about the relationship is simply a matter of personal preference rather than of one party learning and implementing the preferences of the other.

Representation distance estimates the degree of loss of information, control, or both in a principal/agent relationship. In other words, it estimates the degree to which the agent fails to know or implement the true preferences of the principal(s). In a representative democracy or republic, representation distance estimates the degree to which the representative actually represents the interests (basically equivalent to economic preferences, but in politics they might also include preferences to coerce others) of his constituents rather than others.

Representation distance generally grows with the size of group represented. Since even any two people communicate imperfectly, and have conflicts of interest between them, it's not even possible for one person to perfectly represent another, albeit such representation can far more accurately represent any interests than representing a group. One can think of this distance as being minimal, call it 1, when a person is acting for himself. When one principal delegates duties to one carefully chosen and monitored agent (a.k.a. representative), the distance is some greater value, perhaps 2. Representation distance is further compromised by majority vote, which leads to two losses: (1) the interests become increasingly general and vague, rather than the specific and concrete interests the voters actually have, as the number of voters increase and (2) the interests of minorities tend to be neglected.

About Me

Nick Szabo

"A premier thinker about history, law and economics, and the lessons they have for security." -- Adam Shostack, Emergent Chaos

"Szabo comes out with these essays that leave me in awe." -- Brian Dunbar

"Reading material that is eclectic, challenging and endlessly fascinating." -- Sean McGrath, Propylon

"Like most blogs worth my attention, this blog is updated only infrequently. That is because the authors of blogs worth my attention only post when they have something to say that is true, relevant and not already known by their audience. Most of the human race does not have the skill to know when an idea has these three properties. The skill is particularly rare in the fields of politics and economics, which is why this blog is such a rare and valuable thing." -- Richard Hollerith

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These numbers are purely illustrative (perhaps we should start at zero), and the function whereby representation distance increases with the size of the group represented is unknown.

A similar effect occurs in shareholder/management relationships. Shareholder interests vary greatly. Their time preferences for dividends or capital gains vary greatly. They sometimes have non-monetary interests, as in "socially conscious" investing. But the duty of management to shareholders usually gets stripped down to a very simple one, a fiduciary duty to maximize profit.

There may also be efficiency measures proportional to representation distance. For example, the efficiency of investment in public goods (where the "public" is just the population of voters) may be some function of the number of voters. On the other hand, larger representation distance may have a good effect in decreasing the ability of some voters to coerce or oppress other voters via the representative.

Vast amounts of money are put into K Street lobbying, primarily by corporations and government employee labor unions. This is readily explained by representation distance: the relationships between lobbyists and Congressmen, and even more between lobbyists and unelected but influential bureaucrats, often have a much shorter representation distance than those between voter and Representative. (The much shorter physical distance, which greatly facilitates face-to-face relationships, greatly helps to shorten the representation distance, but these are otherwise independent ideas). We can thus expect persons with sufficient resources at stake, such as corporations and government employee unions, to put far more effort into lobbying than they or others do into mere voting.

Since a political representative represents not the only normal economic preferences of voters, but also preferences to coerce others, large representation distance is not necessarily a bad thing. An effectively infinite representation distance is effective independence, which is often a good thing. (We can't achieve perfectly infinite representation distance, of course). We want the legislative, executive, and judicial branches to operate independently, for example, not for one to represent the other. However political property rights, or contracts where when the rules are unspecified on party is not expected to learn or implement the preferences of the other, are usually a far better way than pseudo-representation to achieve independence or infinite representation distance. Political property rights turn at least putatively will-based (a representative is supposed to represent the will of his principal(s)) system into a rule-based system (the owner must operate within the procedural bounds of his property right, and is expected within those rules to learn and follow only his own preferences). Pseudo-representation -- the use of the language of agency depsite a very large representation distance -- may, however, provide an illusion of participation sufficient to satisfy the naive that their interests are actually being represented.

To summarize, no group is truly homogenous, so it's not possible to perfectly represent any group. Since even any two people communicate imperfectly, and have conflicts of interest between them, it's not even possible for one person to perfectly represent another, albeit such representation can far more accurately represent any interests than representing a group. Thus representation distance grows with the size of group represented. Much politics can be explained by problems caused by representation distances that are too long or too short, or by poor estimates of representation distance made by naive participants.

[These comments are based on my comments on a previous post, and thanks to "anonymous" for reminding me about my old idea of representation distance, and for the idea that bribery of a representative by a third party increases representation distance from the principal].

Here are some links to learn about agency law, the principal/agent problem, and political property rights.

Posted by Nick Szabo at 2:28 PM

Blog Archive

- ► 2018 (1)
- ► 2017 (3)
- ► 2016 (4)
- ► 2015 (3)
- ► 2014 (3)
- ► 2013 (3)
- ► 2012 (8)
- ► 2011 (12)
- ► 2010 (9)
- ► 2009 (29)
- ▼ 2008 (55)
  - ► December (2)
  - ► October (2)
  - ► September (4)
  - ► August (9)
  - ► July (4)
  - ► June (6)
  - ► May (6)
  - ► April (4)
  - ▼ March (10)
    - Laches
    - How our frog was boiled
    - The monetary value of liquid commodities
    - Representation distance
    - Unpredictable elections
    - Comments on the United States Constitution (iii)
    - Logic and Legal Drafting 101
    - Comments on the United States Constitution (ii)
    - Logical emergence of money from barter
    - Comments on the United States Constitution (i)
  - ► February (5)
  - ► January (3)

5 comments:

Anonymous said...

I wonder if representation distance is part of the problems behind the current credit crises. Repackaging loans increases the distance between the borrower and the lender

10:25 PM

nick said...

Broadly speaking, I'd say that's right. In the sense that one might loosely speak of a debtor as an agent and a creditor as a principal. The only "interest" involved is a very simple one, though, paying back a specific debt, so this is a somewhat loose analogy, not at the core of the meaning of "agency."

Representation distance creates selectional bias (lack of information, bribery, catering only to majorities or other subsets, etc. during the process of selecting the agent(s)) and operational bias (same kinds of biases and conflicts of interest but while acting as agent(s)).

Adverse selection is a well known subset of selection bias studied by economists, and moral hazard is a well known subset of operational bias.

In the case of credit, transferring credit risk is a form of insurance, and creates moral hazard. There are also related adverse selection problems. These tend to be well known among economists, albeit not well enough known enough to include them properly in most of the models Wall Street has been using.

2:09 PM

jon said...

Very nice writeup!

At a collective level, it strikes me that in the current US presidential election, the media is another example of an agent whose interests may not align with the principal's -- in this case, the public. An article in the NY Times today on social networks and news sources discussed how people are increasingly bypassing the "analysis and content provided by seasoned journalists" and going directly to source documents. I guess one way to think of this is that the representation distance has gotten too large and people are doing something about it.

Also, communication of the public's preferences back to the media is typically mediated by yet another agent, the Arbitrons and Neilsens (or online, Googles et al) of the world. One of the things we're potentially seeing are new channels [huge Facebook protest groups, mass petitions, email campaigns] which lead to more direct communication of preferences and reactions.

1:48 PM

Anonymous said...

I have some comments here http://www.emergentchaos.com/archives/2008/03/the_principalagent_proble.html

5:24 AM

nick said...

jon: *the media is another example of an agent whose interests may not align with the principal's -- in this case, the public.*

This is a great point which I shall endeavor to elaborate on.

Technically, and of some practical importance as well, the legal (i.e. contractual) principals of the mass media are not the public at all, but advertisers.

In a very broad sense the mass media have three major principals. The viewers/listeners/readers and the advertisers are the two most obvious. But the most influential are journalists' sources. The sources, not the journalists themselves, do the vast majority of the investigation and even, in the sense of dreaming up phraseology and spinning ideas, the writing of most stories. Journalists thus usually end up acting as the agents of the people with the most exciting stories.

For these reasons, I agree with your conclusion that the representation distance between friends acting as agents for each other is often far shorter than that between the journalist and media consumer.

3:25 PM

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